

September 20, 1996

Ms. Joanne LaBaw  
United States Environmental Protection Agency  
1200 Sixth Avenue, ECL-115  
Seattle, WA 98101

Re: Contract No. 68-W6-0008  
TDD: 96-03-0020

Dear Ms. LaBaw:

Enclosed please find the Final Preliminary Assessment (PA) report for the Davidson's Landing site located in Teller, Alaska. This report incorporates your comments outlined in a letter dated August 28, 1996 to Jeryl Kolb, the START Project Manager.

Specifically, text has been added in **Section 2.4**, Site Investigations, enumerating the clean-up levels and sample analytical results for activities conducted by the U.S. Army Corps of Engineers. Three additional Attachments have been added to the report that include the clean-up levels and complete analytical results in table form, and additional references have been included in **Attachment A**. Also, **Figure 2-3** has been added to demonstrate the locations of six work areas within the site. Lastly, the word "draft" has been removed from the title of the report and replaced by the word "final".

If you have any questions regarding this PA, please call me at (206) 624-9537.

Sincerely,

ECOLOGY AND ENVIRONMENT, INC.

Jeff Fowlow,  
Project Leader

cc: Gary Sink, EPA, Region 10 (letter only)  
William Carberry, E & E, Seattle (letter only)

JTK/jw

FINAL  
PRELIMINARY ASSESSMENT  
DAVIDSON'S LANDING  
TELLER, ALASKA

START REGION X

Contract No. 68-W6-008  
Technical Direction Document No. 96-03-0020

September 1996

Prepared By:

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999 Third Avenue  
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Prepared For:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

**FINAL  
PRELIMINARY ASSESSMENT  
DAVIDSON'S LANDING  
TELLER, ALASKA**

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## 1.0 INTRODUCTION

Ecology and Environment, Inc., (E & E) has been tasked by the U.S. Environmental Protection Agency (EPA) to provide technical support for completion of a Preliminary Assessment (PA) at the Davidson's Landing site located in Teller, Alaska. E & E completed PA activities under Technical Direction Document No. 96-03-0020, issued under EPA Region X Superfund Technical Assessment and Response Team (START) Contract Number 68-W6-0008. The specific goals for the Davidson's Landing PA identified by the EPA are presented below:

- C Determine the potential threat to public health or the environment posed by the site;
- C Determine the potential for a release of hazardous constituents into the environment; and
- C Determine the potential for placement of the site on the National Priorities List.

Completion of the PA included reviewing existing site information, collecting receptor information within the range of site influence, and determining regional characteristics. This document includes a discussion of background site information ([Section 2](#)); a discussion of migration/exposure pathways and potential receptors (targets) ([Section 3](#)); and a list of pertinent references ([Section 4](#)).

## 2.0 SITE BACKGROUND

### 2.1 SITE LOCATION

Site Name: Davidson's Landing

CERCLIS ID No.: AK0000262097

Location: ~ 32 miles east of  
Teller, Alaska 99778

Latitude: 65E 14' 28.40" North

Longitude: 165E 16' 13.60" West

Legal Description: Section 8, Township 3 South, Range 32 West

Site Owners:

Mary's Igloo Native Corporation  
P.O. Box 629  
Teller, Alaska 99778  
(907) 642-3731

Bering Straits Native Corporation  
P.O. Box 1008  
Nome, Alaska 99762  
(907) 443-5252

U.S. Bureau of Land Management  
P.O. Box 952  
Nome, Alaska 99762  
(907) 443-2177

U.S. Bureau of Indian Affairs  
Flora Miller Native Allotment  
P.O. Box 896  
Nome, Alaska 99762  
(907) 443-2284

Site Operators: Not Applicable

Site Contacts:

Mary's Igloo Native Corporation  
P.O. Box 629  
Teller, Alaska  
Contact: Richard Komok, Tribal Coordinator  
(907) 642-3731

Bering Straits Native Corporation  
P.O. Box 1008  
Nome, Alaska 99762  
Contact: Guy Martin, Land Manager  
(907) 443-5252

U.S. Army Corps of Engineers  
Alaska District Office  
Anchorage, Alaska 99503  
Contact: Gus Olsen, Project Manager  
(907) 443-5929

## **2.2 SITE DESCRIPTION**

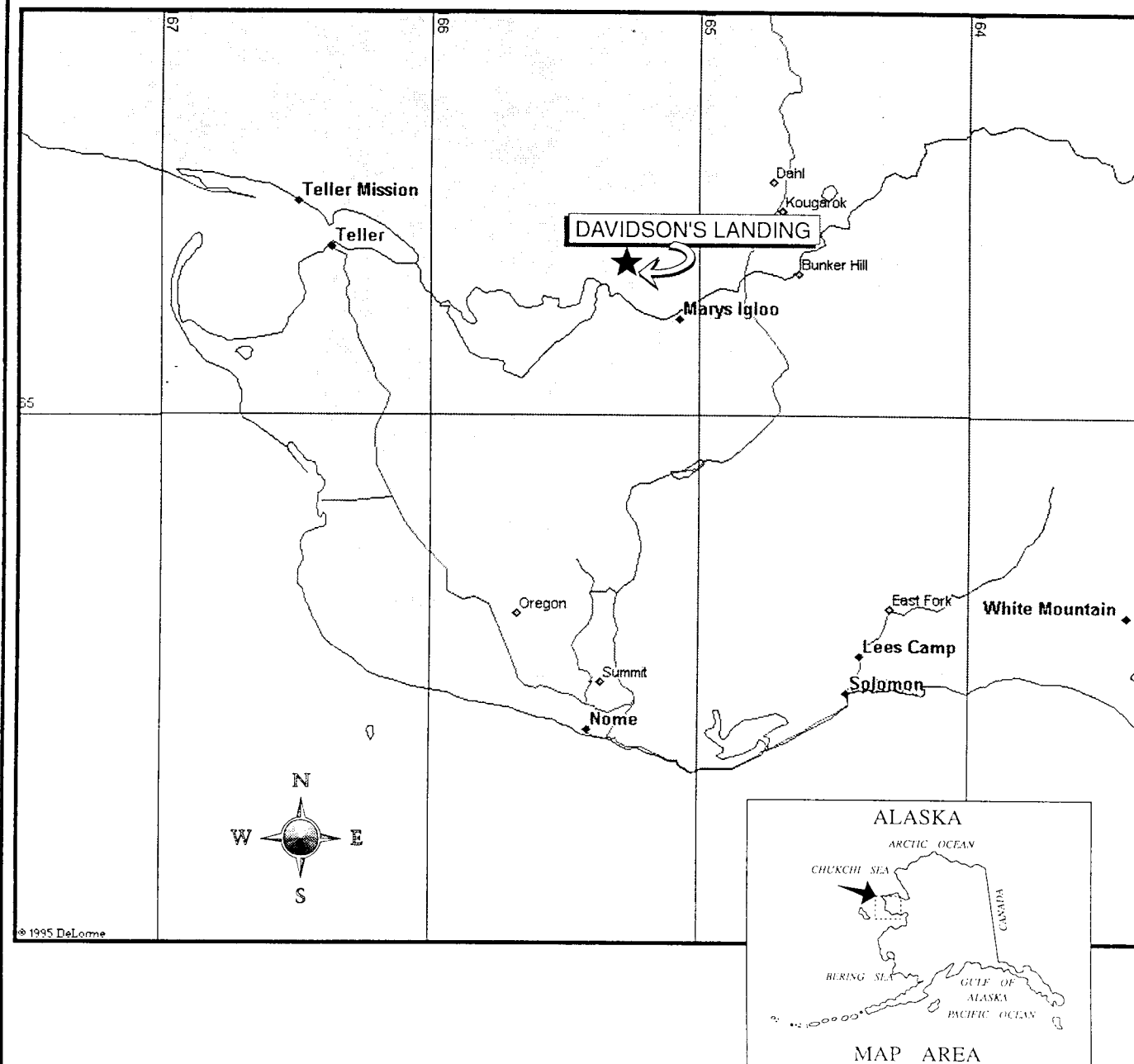
The Davidson's Landing site is approximately 41 air miles north of Nome, Alaska and approximately 32 miles east of Teller, Alaska (Figure 2-1), and is 80 acres in size. In the early 1900's the site was a landing point for gold mining supplies that were barged from Teller and then transported inland. As a result, Davidson's Landing is registered with the Alaska Archaeological/Historical Survey Record. In July 1945 the site was purchased by the military from the U.S. Department of the Interior (DOI) and was developed into one of many satellite fuel caches created in the area during World War II. The military transferred ownership of the site back to the DOI in February, 1949. Currently, site ownership is divided between federal agencies and native corporations, with the site boundaries formed along property lines (IT Corporation, 1995).

The site consists primarily of flat tundra, which becomes a wetland during the spring and summer. A portion of the western site border is formed by the Kaviruk River, where natural levees are six to ten feet high, and Mary's Lake comprises the southern boundary (Figure 2-2). A large unnamed slough runs through the middle of the site and empties into Mary's Lake. Access to the site is by water or air only during the summer, and by overland route during the winter (Harza Environmental Services, 1990).

## **2.3 SITE OPERATIONS AND WASTE CHARACTERISTICS**

The site has been out of operation since 1949. The site has been used as both a landing point for mining operations and as a military fuel cache. As a result, contaminants of concern include total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), diesel range organics (DRO), total metals, and battery acid.

## **2.4 SITE INVESTIGATIONS**



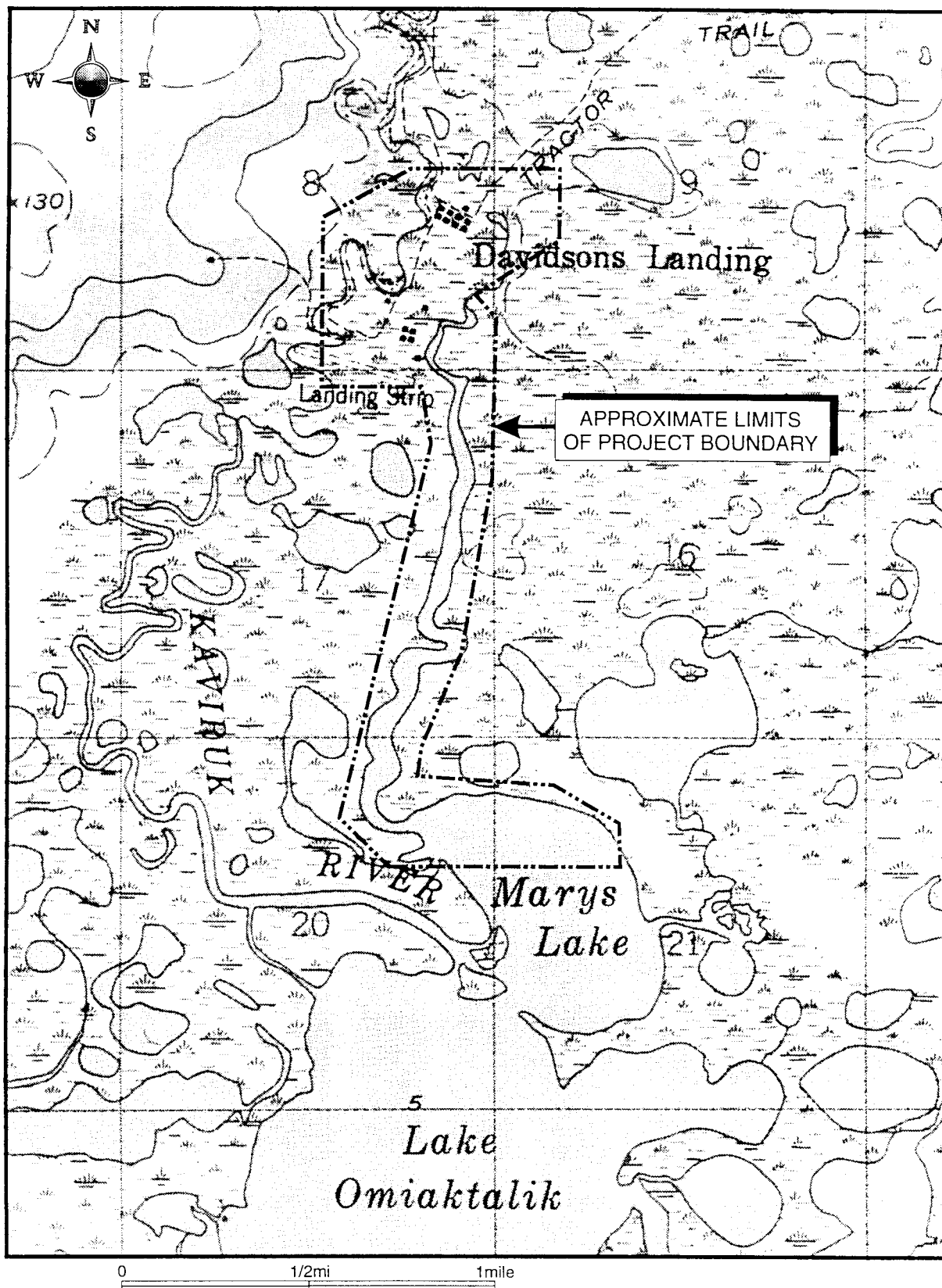
NO SCALE USED



# DAVIDSON'S LANDING SITE TELLER, ALASKA

Figure 2-1  
SITE LOCATION MAP

Drawn By:	Date	TDD/Jco f.o.	Dwg. f.o.
MPE	06-18-96	96-03-0020	KJ0100



In 1983 the Defense Environmental Restoration Program (DERP) was created as a continuation of the Department of Defense (DOD) Installation Restoration Program. DERP provided authority and funds to remediate active and formerly owned military properties across the country. The U.S. Army Corps of Engineers (ACOE) was selected as DOD's agent responsible for implementing DERP. Thirteen sites in the Nome-Seward Peninsula area, including Davidson's Landing, were identified for assessment and possible remedial activities. These activities were prompted by the reconveyance of these lands to local Native Corporations following passage of the Alaska Native Claims Settlement Act in the 1970's (Harza Environmental Services, 1990).

The ACOE and Woodward-Clyde Consultants performed a field reconnaissance of the site in 1985, and collected samples from selected locations in 1986. The analytical results were presented in four separate reports which E & E did not review.

James M. Montgomery Consulting Engineers, Inc. (JMM) was subsequently retained as the prime contractor to the ACOE to coordinate activities at all 13 sites. JMM subcontracted Harza Environmental Services (HES) to conduct Petroleum-Oil-Lubricant (POL) and Toxic and Hazardous Material (THM) investigations at the sites. In 1989 HES collected two drum samples, 19 soil samples, four sediment samples, three surface water samples, and one groundwater sample from the Davidson's Landing site (Harza Environmental Services, 1990). The soil samples were collected adjacent to the sampled drums, and from areas of visible staining; surface water and sediment samples were collected from on-site wetlands; and the groundwater sample was collected from a hand-dug hole approximately 18-inches deep. All soil, sediment, and water samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs), TPHs, and total metals. In addition to VOCs, SVOCs, pesticides/PCBs, and total metals, the drum samples were also analyzed for Resource Conservation and Recovery Act (RCRA) characteristics, and total organic halogens (Harza Environmental Services, 1990).

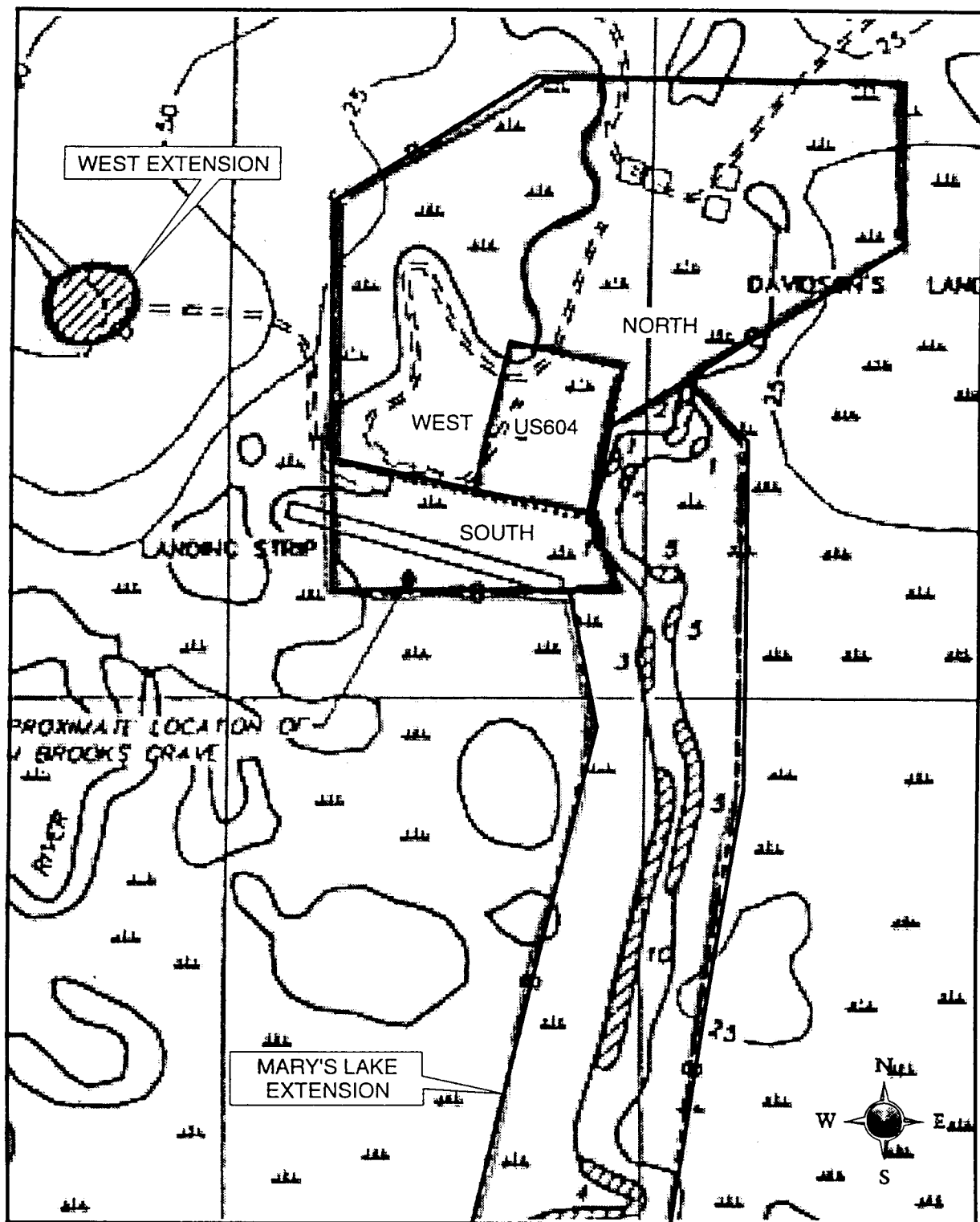
Contamination levels of concern for water, soil, and sediment were chosen by first identifying Applicable or Relevant and Appropriate Requirements (ARARs), including EPA, Alaska, and California requirements. Using these, two sets of standards or guidelines were developed, one for contaminants in water, the other for contaminants in soil and sediment. Where they exist, Alaska standards or guidelines were given priority, followed by California standards, California guidelines, and EPA standards and proposed standards (Harza Environmental Services, 1990). Due to the environmental sensitivity of the site, drinking water standards were chosen in favor of those for other types of water. Where no Alaska, California, or federal drinking water standards or guidelines existed, the federal ambient water quality criteria were selected. No standards exist for soil except for federal standards for PCBs, so Alaska guidelines for petroleum-contaminated soils were used to select levels of concern for gasoline and other fuels, California underground storage tank guidelines were used for benzene, ethylbenzene, toluene, and xylene, and the New Jersey action

level for polynuclear aromatic hydrocarbons (PAHs) was selected in lieu of a more appropriate soil clean-up level. For metals in soil and sediment, concentrations were considered elevated if they exceeded those of the background soil sample. Drum samples were collected in order to identify the contents for classification, compatibility, and other characteristics in order to facilitate proper treatment and disposal. As a result, sample results were compared to RCRA characteristic criteria for toxicity, ignitability, corrosivity, and reactivity (Harza Environmental Services, 1990).

The major organic contaminants detected during the sampling included fuel compounds above levels of concern in seven soil samples and one sediment sample. PAHs were also detected above levels of concern in one soil sample and one drum sample. In the metals analysis, chromium was detected above levels of concern in all soil and sediment samples, and lead was elevated in all the soil and all but one of the sediment samples. These two metals were also detected in water samples and exceeded levels of concern in the groundwater sample. Arsenic was elevated in five soil samples and barium in eight, while both exceeded levels of concern in all the sediment samples. The drum samples did not exhibit any RCRA hazardous waste characteristics (Harza Environmental Services, 1990). The established levels of concern and sample results are provided in **Attachment B** in tabulated form.

Using the data derived from this assessment, the ACOE proposed clean-up levels for water, soil, and sediment based on ARARs from Alaska and federal standards, and then evaluated removal alternatives based on these clean-up levels (IT Corporation, 1995). In 1994 IT Corporation (IT), under contract to the ACOE, began remedial activities at the site by first dividing it into six principal areas: the U.S. Survey 604 Area, the North Area, the South Area, the West Area, the Mary's Lake Extension, and the West Extension (**Figure 2-3**).

During this 1994 remedial action, IT segregated all containers and debris on site. Any containers with contents were consolidated and shipped off site via helicopter. These consisted of one 55-gallon drum of light fuel, one 55-gallon drum of lube oil, four 55-gallon drums of grease overpacked in 85-gallon drums, two 55-gallon drums of lead batteries that were piled on site, and two 5-gallon buckets of halogenated oil. The light fuel and lube oil were shipped to Alaska Pollution Control in Palmer, Alaska for disposal, the halogenated oil and grease were shipped to Burlington Environmental in Seattle, Washington for disposal, and the drums of lead batteries were transported to Nome, Alaska for recycling (IT Corporation, 1995).



no scale used



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Seattle, Washington

DAVIDSON'S LANDING SITE  
TELLER, ALASKA

Figure 2-3  
ON-SITE WORK AREAS

Drawn By: MRE	Date 09-20-96	TDD/Job No. AC2001SATO	Dwg. No. AC2001F5
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Empty drums were crushed on site and consolidated with other metal debris. A total of 146 tons of metal debris and one ton of miscellaneous debris was also shipped off site via helicopter to Nome for disposal in a state-permitted landfill. In addition, 73 tons of wood debris was burned on site (IT Corporation, 1995).

IT also collected 12 soil samples, seven sediment samples, and four surface water samples from locations throughout the site. Sample locations were based primarily on visual observation, an elevated photoionization detector (PID) reading, and field screening using immunoassay technology to determine if levels of contamination exceeded clean-up levels. Samples that were selected for further laboratory analysis were analyzed for VOCs, TPH, DRO, and total and Toxic Characteristic Leaching Procedure (TCLP) metals (IT Corporation, 1995).

Clean-up levels were exceeded in four soil samples analyzed for DRO: DL006SL collected in the U.S. Survey 604 Area (14,000 mg/kg), DL009SL collected in the North Swamp area of the North Area (41,000mg/kg), and DL003SL and DL005SL collected in the South Area (21,000 mg/kg and 7,200 mg/kg respectively). The clean-up level for DRO was 5,000 mg/kg. Soil sample DL007SL, collected in the West Area, was analyzed for TCLP lead with a result of 892 mg/kg. The regulatory limit for TCLP lead is 5 mg/kg (IT Corporation, 1995). None of the sediment or surface water samples collected exceeded clean-up levels upon analysis. Clean-up levels and summary analytical results are tabulated in [Attachment C](#).

A third soil sample collected in the South Area, DL001SL, also exceeded the clean-up level for DRO upon field screening analysis. In addition, this sample location was in the midst of an area of petroleum-stained soil, and a PID reading obtained at one foot depth was greater than 100 mg/kg. As a result, during the 1994 work season IT constructed one biovent to treat the soil in this area on site. Additional soil from the location of soil sample DL003SL was also excavated and transported to the biovent for treatment. The biovent was constructed by placing a 10-foot by 10-foot sheet of polyvinyl chloride (PVC) over the soil and installing a vent pipe through the center of the sheet. The pipe consisted of slotted PVC and was inserted into the soil in a 3-foot deep borehole, which was then backfilled with local soil and sealed with bentonite. Lastly, a wind turbine ventilator was attached to the top of the vent pipe to aid in contaminant dispersal (IT Corporation, 1995).

Based on the analytical results of samples collected, IT recommended that additional activities be conducted the following year, during the 1995 workseason. These consisted primarily of further extent of contamination investigations through excavation, sampling, soil boring, test trenching, and field screening (IT Corporation, 1995).

During 1995, the first of a two-phase subsurface investigation targeted eight strategic soil boring locations adjacent to the perimeter of buried debris, which was identified during geophysical surveys conducted in 1994. The borings were drilled with a range of depths from 18 inches to ten feet. If adequate sample recovery could be achieved, soil samples were collected at one-foot intervals and analyzed for DRO,

TPH, VOCs, SVOCs, pesticides/PCBs, and total lead. None of the samples exceeded clean-up levels, which are tabulated along with summary analytical results in [Attachment D](#) (IT Corporation, 1996).

The second phase consisted of excavating 28 test trenches to expose, identify, and quantify the anomalies detected in the surveys. These trenches ranged in size from one cubic foot to 39 cubic feet in size. The type of debris typically encountered consisted of deteriorated drums, scrap wire, tin cans, banding material, sheet metal, and wood with nails. No sampling was associated with any of the test trenches as no visible contamination was observed and elevated PID readings were not obtained. In every case, the encountered debris was left in place and the trench backfilled (IT Corporation, 1996).

A second biovent was also constructed during 1995, approximately 20 yards west of the first biovent in another area where soil was visibly stained with petroleum. This location was identified and sampled (DL002SL) during the 1994 workseason, but field screening results for DRO were below the clean-up level. However, approximately five additional cubic yards of soil was excavated from other petroleum contaminated areas and transported to the second biovent. These other locations were also identified and sampled (DL005SL and DL009SL) during the 1994 workseason and did exceed the clean-up level for DRO (IT Corporation, 1996).

Seven soil samples were collected from the first biovent in the spring of 1995, and seven additional samples in the fall of 1995. Every sample exceeded the clean-up level for DRO, and as a result a 15-foot by 23-foot landfarm treatment cell was constructed in an effort to treat a greater volume of soil over a shorter treatment period. The landfarm cell was constructed adjacent to the first biovent and approximately eight cubic yards of contaminated soil was excavated and transferred. The landfarm and second biovent will continue to operate through the 1996 work season until soils meet clean-up criteria established for the site. Post-excavation samples were collected at every location where soil was removed and transferred for on-site treatment, with none of the results exceeding the DRO clean-up level (IT Corporation, 1996).

Also in 1995, one cubic yard of soil exceeding TCLP for lead was excavated and transported to Burlington Environmental in Seattle, Washington for disposal. This soil was identified by sample DL007SL during the 1994 workseason. Two post-excavation soil samples were collected and analyzed for total lead. Neither exceeded the 500 mg/kg clean-up level (IT Corporation, 1996).

Lastly in 1995, IT removed 20 empty drums from the adjacent slough and collected four sediment and one surface water sample. All sample results were below the established clean-up levels for the site (IT Corporation, 1996).

Due to the remedial activities conducted by the ACOE, the only remaining potential sources of contamination at the site are the landfarm treatment cell, which was constructed within a 15 foot by 30 foot by 2 foot building depression to prevent migration resulting from surface water run-off, and the second biovent, which was constructed in a manner similar to the first biovent. The amount of petroleum

contaminated soil in the landfarm totals 8 cubic yards and is situated on the ground surface. The amount of petroleum contaminated soil in the second biovent is approximately 684 cubic feet (IT Corporation, 1996).

### **3.0 MIGRATION/EXPOSURE PATHWAYS AND TARGETS**

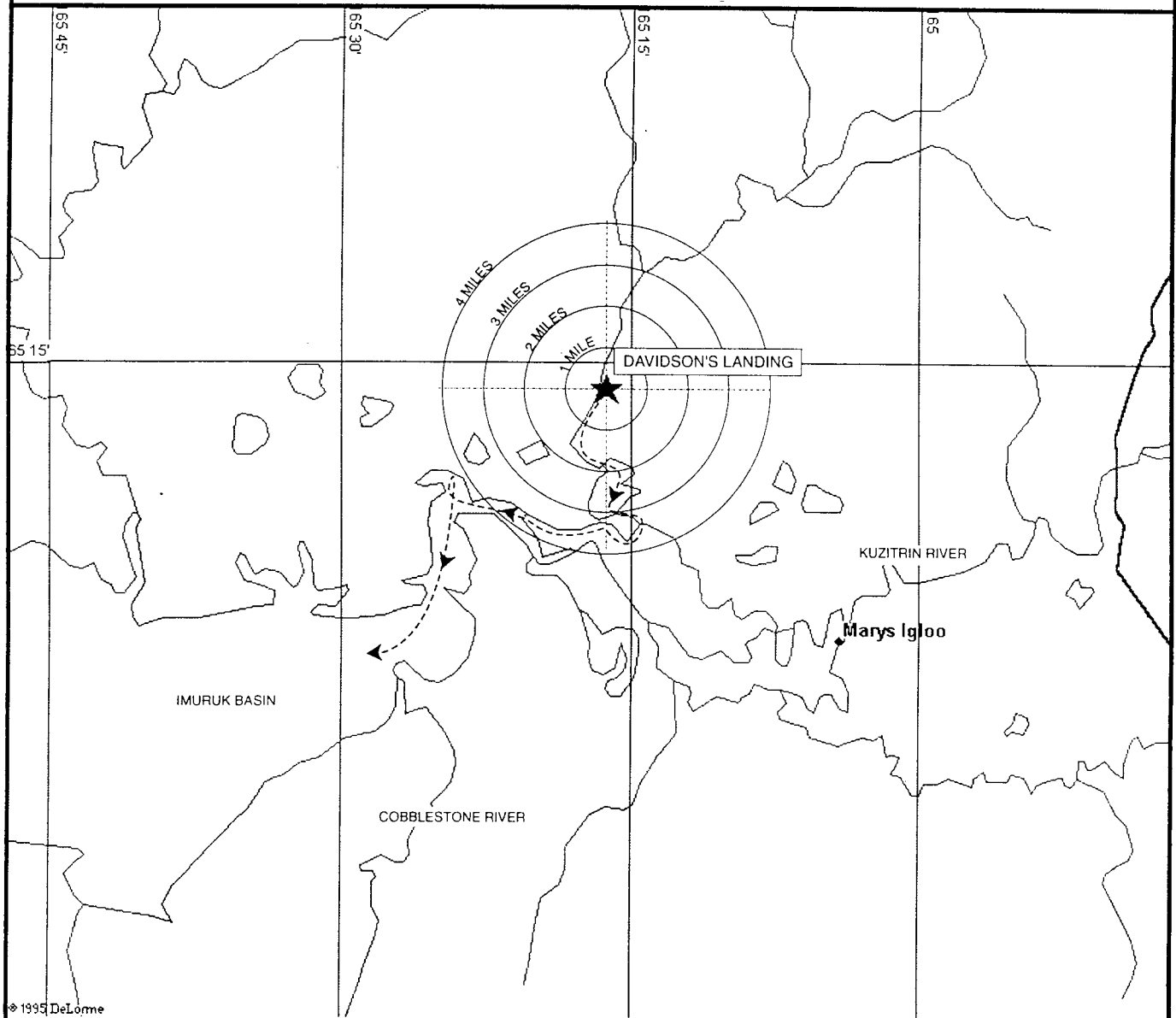
The following sections describe migration/exposure pathways and potential targets within the site's range of influence (Figure 3-1).

#### **3.1 GROUNDWATER MIGRATION PATHWAY**

The site is located on the Seward Peninsula of northwestern Alaska, most of which consists of extensive uplands capped by groups of rugged mountains. Lowland basins occupy the interior, low plains fringe much of the coast, and a wide lava plateau surrounds Imuruk Basin. The prominent upland groups consist of the York, Bendeleben, Darby, and Kigluaik Mountains. Prior to the Pleistocene period, these four ranges were probably rolling highlands that owed their relief to the resistant nature of the rocks of which they are composed. Much of their present height results, however, from Pleistocene uplift ranging from several hundred to a thousand feet. In contrast, several broad basins dotted with lakes and floored with alluvium and glacial sediments are situated between the mountain ranges. A chain of lowlands extends in a southeast direction from the drowned valley occupied by Grantley Harbor and Imuruk Basin to Golovnin Bay on the coast of Norton Sound. The site is situated within such a lowland at the northeastern edge of Imuruk Basin facing the Kigluaik Mountains to the south (Williams, 1958).

Most of the peninsula is underlain by a bedrock of schist or slate, however granite is common in the mountain ranges and basalt lavas cover approximately 1,000 square miles of the Imuruk Basin area. Most of the lowlands in the southern part of the peninsula are underlain by coarse gravels, whereas those in the northern part are underlain by thick deposits of silt. In most places the ground remains frozen throughout the year to depths of 100 feet or more, with only the upper few feet of soil thawing each summer (Williams, 1958).

The soil borings conducted by IT Corporation indicate the dominant soils at the site consist of shallow gravels covered in many places with silty sediment overlying permafrost. In some borings permafrost was encountered at 3.5 feet, while in others it was at a depth greater than 15 feet. Groundwater was not encountered in any of the borings and surface water percolation and drainage is poor due to the permafrost which acts as a confining layer (IT Corporation 1996). Because the ground is frozen, domestic water wells are not installed (Williams, 1958), and there are no residential or commercial water sources at the



SCALE: 1" = 4 MILES

↔ = APPROXIMATE PATH OF 15 MILE DOWNSTREAM RANGE OF INFLUENCE



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Seattle, Washington

DAVIDSON'S LANDING SITE  
TELLER, ALASKA

Figure 3-1  
SITE RANGE OF INFLUENCE

Drawn By:	Date	TDD/Joo No.	Dwg. No.
MRE	06-18-96	96-03-0020	KJ0100

site (IT Corporation, 1995). A search by the Alaska Department of Natural Resources revealed no registered water wells within a four mile radius of the site.

### **3.2 SURFACE WATER MIGRATION PATHWAY**

The site is located at the northeast corner of Imuruk Basin where the Kaviruk, Kuzitrin, and Pilgrim Rivers flow into the basin in a maze of sloughs, small lakes, and tidal wetlands (USGS, 1950). The Imuruk Basin is connected to Grantley Harbor and the Bering Sea by the Tuksuk Channel. The sources are situated between the Kaviruk River and an unnamed slough. Flow data for these surface water bodies could not be found and does not appear to be kept. The surface of the site consists of extensive moist tundra and small ponds which, with sufficient rainfall, will drain to either the Kaviruk River or the slough. This moist tundra is classified as a wetland and is regulated by the ACOE under The Clean Water Act (ACOE, 1993).

The probable point of entry for any potential surface water run-off from the sources is assumed to be into the adjacent wetlands and then into the unnamed slough which is located approximately 50 feet to the east of the landfarm treatment cell. The 15 mile downstream target distance limit encompasses the slough, Mary's Lake, Lake Omiaktalik, additional unnamed sloughs, and the northeast corner of Imuruk Basin, all of which are estuarine areas where freshwater mixes with saltwater. As a result there are no surface water intakes within 15 miles downstream of the site. Also there are no major or designated recreational areas within 15 miles downstream of the site. The maximum rainfall during a 24-hour period recorded for the area of the site is 2.99 inches (IT Corporation, 1995). The upgradient drainage area is estimated from topographic maps to be approximately 10 square miles. The dominant surficial soils consist of shallow gravels and silts overlying permafrost (IT Corporation, 1996).

Coastal and estuarine areas are important migration, feeding, and spawning grounds for both anadromous and freshwater fish species such as pink and chum salmon, Arctic char, inconnu, several species of whitefish, northern pike, burbot, and Arctic grayling (ACOE, 1993). While some sport and commercial fishing activity appears to occur on waters within 15 miles downstream of the site, the amount appears to be minimal and catch data could not be found. However, both fresh and saltwater areas are used for subsistence fishing by area residents (Harza Environmental Services, 1990), with surveys indicating that up to 44% of area households engage in subsistence activities once a week (ACOE, 1993). In 1995 an estimated total of 15,600 individual salmon were harvested in the Port Clarence District for subsistence purposes (ADF&G, 1996). Using topographic maps it is estimated that approximately 1/4 of this district is within 15 miles downstream of the site, and therefore 3,900 salmon can be assumed to have been harvested within the surface water migration pathway. Assuming that each fish weighs approximately 10 pounds, it is estimated that 39,000 pounds of fish were harvested from within 15 miles downstream of the site for subsistence purposes in 1995.

Because National Wetland Inventory maps of the site could not be found, the ACOE wetland classification and topographic maps were used to calculate wetland waterfrontage. It is estimated that approximately 50 miles of waterfront wetlands exist within 15 miles downstream of the site (ACOE, 1993; USGS, 1950).

The federally-listed threatened Arctic Peregrine falcon (*Falco peregrinus tundrius*) exists on the Seward Peninsula, with the closest nest located approximately 4.5 miles from the site (ACOE, 1993). The species is assumed to use the site as a hunting area and is a known migrant through the site. No other endangered or threatened species are known to inhabit the area (ACOE, 1993).

### **3.3 SOIL EXPOSURE PATHWAY**

The closest permanent residences are located in Teller, Alaska, which is located approximately 32 air miles to the west. Several seasonal hunting and fishing camps are located within several miles of the site, but none are within a one mile radius (USGS, 1950). The site itself may occasionally be crossed to get to these camps, but is not regularly occupied. It is assumed the site is used by the Arctic Peregrine falcon, a federally-listed threatened species.

### **3.4 AIR MIGRATION PATHWAY**

The site is not occupied, and no people live within 4 miles of the site (USGS, 1950). Because National Wetland Inventory maps of the site could not be found, topographic maps were used to calculate wetland acreage. Approximately 17,824 acres of wetlands are located within 4 miles of the site (USGS 1950). It is assumed the site is used by the Arctic Peregrine falcon, a federally-listed threatened species. **Table 3-1** provides populations and wetland acreage by distance ring within 4 miles of the site.

<b>Table 3-1</b> <b>POPULATIONS AND WETLAND ACREAGE WITHIN A 4-MILE RADIUS</b>		
<b>Distance (Miles)</b>	<b>Residents</b>	<b>Wetland Acreage</b>
On a source	0	0
0 - 1/4	0	192
1/4 - 1/2	0	512
1/2 - 1	0	800
1 - 2	0	3,200
2 - 3	0	5,120
3 - 4	0	8,000
Total	0	17,824

source: USGS 1950

#### 4.0 REFERENCE LIST

- Alaska Department of Fish and Game (ADF&G), 1996, Nome District Office, Nome, Alaska, fax of Appendix Table B1 Subsistence salmon catches for Port Clarence District, 1963-1995, and Table 10 1995 Port Clarence subsistence salmon harvests, to Jeryl Kolb, Ecology and Environment, Inc., Seattle, Washington.
- Harza Environmental Services, Inc., 1990, Chemical Contamination Report, Davidson's Landing Site, Nome Area-Seward Peninsula Project, Contract No. DACA85-85-C0039, James M. Montgomery Consulting Engineers, Inc., Anchorage, Alaska, and U.S. Army Corps of Engineers, Alaska District, Anchorage, Alaska.
- International Technology Corporation (IT Corporation), 1995, Final Remedial Action Report, Davidson's Landing Site, Contract No. DACW41-89-D0133, Delivery Order No. 15, U.S. Army Corps of Engineers, Alaska District, Anchorage, Alaska.
- \_\_\_\_\_, 1996, Draft Remedial Action Report, Davidson's Landing Site, Addendum 1 - 1995 Work Season, Contract No. DACW41-89-D0133, U.S. Army Corps of Engineers, Alaska District, Anchorage, Alaska.
- U.S. Army Corps of Engineers (ACOE), 1993, Defense Environmental Restoration Program Environmental Assessment and Finding of No Significant Impact, Seward Peninsula Sites, Alaska, Alaska District, Anchorage, Alaska.
- U.S. Geological Survey (USGS), 1950 (minor revisions in 1973), 15 minute series topographic maps, Teller (A-1), Teller (A-2), and Teller (B-1), Alaska, quadrangles.
- Williams, Howel, 1958, Landscapes of Alaska, Their Geologic Evolution, University of California Press, Berkeley, California.

## **ATTACHMENT A**

### **REFERENCES**

(Included in original report only)

**ATTACHMENT B**

**1989 HARZA ENVIRONMENTAL SERVICES, INC.**

**SAMPLE ANALYSIS RESULTS**

(included in original report only)

**ATTACHMENT C**

**1994 IT CORPORATION SAMPLE ANALYSIS RESULTS**  
(included in original report only)

**ATTACHMENT D**

**1995 IT CORPORATION SAMPLE ANALYSIS RESULTS**  
(included in original report only)